



Cat. No. 21-869

10M Ham/CB Base Antenna

Your RadioShack 10M Ham/CB Base Antenna provides excellent reception of amateur radio, CB, and commercial radio signals. The antenna can handle up to 2000 watts of transmit power.

Your antenna's features include:

Electrical Half-Wave Design — provides high gain.

Note: To improve your antenna's gain, you can connect an optional ground plane kit (available through your local RadioShack store) to your antenna.

Three Easy-to-Assemble Sections — help you quickly and easily assemble the antenna.

Dual Tuning Rings — help you quickly set the antenna for optimum performance over a wide range of frequencies.

Ultraviolet Inhibitor — the antenna's UV-protected housing is made of impact-resistant fiberglass, making the exterior resistant to weathering and color change.

Strong Internal Construction — prevents the antenna's internal wires from rattling, for maximum strength.

IMPORTANT SAFETY PRECAUTIONS

Many do-it-yourself and professional antenna installers are injured or killed each year by electric shock. Many power wires are within 20 to 25 feet of the ground and could easily be touched by an assembled antenna or cable. Touching the overhead wires with any part of the antenna is the same as touching the wires with your bare hand. Contacting an electrical wire almost always results in a very serious shock.

To avoid electric shock, please read and follow these important safety precautions:

- Be sure to select an antenna site well away from all overhead wires.
- Do not try to guess which overhead wires carry high voltage. Check with the power company.
- If you notice anything making contact with the overhead wires, call the power company to have it removed.
- Do not run the antenna's cable over power wires.
- Get help from a qualified professional when removing the old antenna, especially if you have any doubt about clearing overhead wires.
- Never install an antenna by yourself. Be sure to have at least two people available for help.
- Never install an antenna on a windy day.

BEFORE YOU BEGIN

When deciding on an antenna's location, consider these points:

- The antenna should be as high as possible on the building.
- The antenna and its cable should be as far as possible from sources of electrical noise such as appliances or other radios.
- The antenna should be vertical for the best performance.

Always use 50-ohm coaxial cable, such as RG-58 or RG-8, to connect the antenna to your radio. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. Your local RadioShack store carries a wide variety of coaxial antenna cable and connectors.

Warning: When you install an outdoor antenna, use extreme caution. If the antenna starts to fall, let it go! It could contact overhead power lines. If the antenna touches the power line, contact with the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. Do not attempt to remove it yourself!

Cautions:

- Do not run the cable over sharp edges or moving parts that might damage it.
- Do not run the cable next to power cables or other antenna cables.

Coaxial Cable Installation Precautions

- Do not install coaxial cable where it will have a pulling tension of greater than 50 pounds. Leave no tension on the cable after installing it.
- Use only round-headed staples. Any clamps or securing devices used with coaxial cable should grip the cable evenly about the circumference without crushing the cable. Flat staples can damage coaxial cable.
- Do not expose coaxial cable to a temperature greater than 176°F (80°C). Keep the cable away from heating vents and water heaters.
- Do not install coaxial cable where it will be crushed, stuffed, wedged, or pinched.
- The cable's jacket withstands most outdoor environments. However, you must seal connections and splices to prevent moisture from entering them.

PREPARATION

Pre-Tuning the Antenna

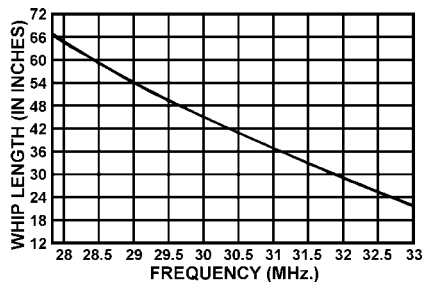
Your antenna is preset to use 27.205 MHz (the middle of the CB band) for the lowest SWR. *If you are using your antenna with a CB radio, you do not have to pre-tune it.* See "Assembling and Mounting the Antenna" on Page 3.

Before you assemble and mount the antenna, you must determine the frequency range you will be using with it. *If you are not using CB frequencies, you must either trim the antenna's top element to match the range you are using or use an antenna tuner (not supplied) to electrically trim the antenna.*

Caution: To avoid damaging the antenna, do not trim the antenna's middle or bottom elements.

If you are using your antenna with an amateur radio and want to trim the antenna's top element to pre-tune it, follow these steps.

1. Use the following chart to determine how much you need to trim off of the top element (if any).



For example, to pre-tune the antenna to use a frequency of 29.328 MHz, you must cut off enough of the top element (about 21 inches) to leave it approximately 51 inches in length.

2. Remove the cap from the top of the top element.
3. Use a tape measure to measure the length you need to cut off of the top element, then use a hacksaw to carefully cut the top element.
4. Replace the cap on the top element.
5. Set the tuning rings on the bottom element of the antenna to their lowest position.

Note: If you trim too much off of the top element or use the antenna for a different frequency later, you can order a replacement top element from your local RadioShack store.

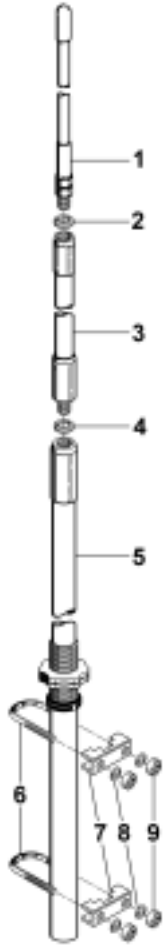
If you need to pre-tune the antenna to a frequency lower than 28 MHz, use an antenna tuner (not supplied).

Assembling and Mounting the Antenna

Before you can use the antenna, you must assemble and mount it then connect it to your radio. You can mount the antenna outdoors on a vertical, solid object such as a TV antenna mast. For the best results, mount the antenna vertically as high as possible away from trees or other obstructions. (Higher frequencies are noticeably affected by obstructions.)

Important:

- Do not mount the antenna on a metal surface such as aluminum siding. This greatly reduces the antenna's ability to receive signals.
- Before you assemble the antenna, prepare the structure that you will mount it to. RadioShack stores carry standard TV masts which you can use to mount the antenna. Make sure the supplied U-bolts will fit around whichever mast you choose.



Follow these steps to assemble and mount the antenna.

1. Lay the antenna's components on the ground in a flat, open area.
2. Place the supplied $\frac{3}{8}$ -inch lock washer (2) over the threaded end of the top element (1).
3. Insert the threaded end of the top element into the threads on the center element (3), screw the top element into the center element, then use a $\frac{1}{2}$ -inch wrench to tighten it.
4. Place the supplied $\frac{1}{2}$ -inch lock washer (4) over the threaded end of the center element.
5. Insert the threaded end of the center element into the threads on the bottom element (5), screw the center element into the bottom element, then use a 1-inch wrench to tighten it.
6. Hold the assembled antenna vertically next to the structure where you want to mount it, then slide the supplied U-bolts (6) over the antenna and the structure.
7. Slide the supplied brackets (7) over the ends of the U-bolts, then use the supplied lock washers (8) and hex nuts (9) to secure it.

Caution: To avoid damaging the bottom element, do not over-tighten the hex nuts.

8. Connect one end of the coaxial cable (not supplied) to the connector on the bottom of the bottom element. Then route the cable to your radio and connect it to the antenna jack on the back of the radio.

Important: Your antenna is designed to let excess moisture escape from inside the bottom element. Do not use a silicone sealant or caulking material around any part of your antenna to seal it. Otherwise, the antenna might not work properly.

TUNING THE ANTENNA

If you are using your antenna at frequencies in the range of 25 to 30 MHz, you can tune the antenna using an standing-wave ratio (SWR) meter (not supplied) and the dual tuning rings on the bottom element.

Notes:

- If you are using your antenna at frequencies below 25 MHz, you will need an antenna tuner (not supplied) to tune it.
- The antenna's coaxial cable connector is the best place to check your antenna's SWR, but you can also check it at the radio's coax connection.

Follow these steps to tune the antenna.

1. Follow the instructions supplied with your SWR meter to adjust your antenna's SWR to the lowest possible value.

SWR values of 2.0:1 are generally acceptable, with readings of 1.5:1 or lower being more desirable.

2. With the antenna assembled and mounted, slowly move the tuning rings up as you check the SWR, until you reach your desired frequency.
3. If the center frequency is still too low, follow the steps under "Pre-Tuning the Antenna" on Page 3 to shorten the top element by $\frac{1}{2}$ inch. Then check the SWR again. Keep shortening the top element until you reach the desired SWR.

4. Using an SWR meter, check the SWR at the top and bottom of the band. If the SWR is higher at the top of the band than at the bottom, raise both tuning rings counterclockwise at increments of $\frac{1}{4}$ to $\frac{1}{2}$ turns.
5. Repeat Step 4 until the SWR is as low as possible at both ends of the band.
6. When you have set the desired SWR, tighten the tuning rings against each other by simultaneously turning the top ring down (clockwise) and the bottom ring up (counterclockwise) to lock them.

After you have properly installed and tuned your antenna, use a watt meter (not supplied) to test the amount of power your transmitter is sending to your antenna. If you have properly tuned the antenna, the meter should show the transmitter's maximum output power and the SWR meter should show very low reflected power.

TROUBLESHOOTING

If you have problems mounting or tuning your antenna, here are some suggestions that might help. If you still have trouble, contact your local RadioShack store for assistance.

PROBLEM	POSSIBLE CAUSE	SOLUTION
SWR reading is too high or cannot be set.	Depending on the frequency you want to use it for, the antenna might be too long or too short.	Pre-tune the antenna (see "Pre-Tuning the Antenna" on Page 3).
	The antenna is not installed in a good location.	Move the antenna to a different location and try again.
	The coaxial cable might be broken or damaged.	Use another coaxial cable.
	The coaxial cable might be coiled.	Uncoil the coaxial cable.
	The SWR meter might be connected incorrectly.	Make sure the SWR meter is connected correctly to the antenna and your radio.
	The antenna or radio might not be properly grounded.	Make sure the antenna and radio are properly grounded.

SPECIFICATIONS

Reception	VHF and UHF (Pre-tuned for 27.205 MHz)
Half-Wave Gain	9.9 dBi
Optimum SWR Range	Less than 1.5:1
Height (assembled)	17.5 feet (5.3 m)
Maximum Diameter	1.8 inches 34 mm.)
Weight	4 lbs 15 oz (2.24 kg)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

Limited Ninety-Day Warranty

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for ninety (90) days from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow the limitations on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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